

CMCSS Curriculum Guide - Math 4
Introduction

CMCSS Math 4 Curriculum Guide

For the purpose of instruction teachers must remember that the end of the year TCAP will assess current Tennessee Diploma Project (TDP) standards, minus the SPIs which have been dropped (See box below). In addition, TCAP may include some items aligned to Common Core State Standards for the purpose of field testing.

The State of Tennessee has removed the following standards from the TCAP. These standards have been removed from the district pacing guide and should no longer be taught within the 4th grade.

SPI 0406.1.2 Compare decimals using concrete and pictorial representations.

SPI 0406.1.3 Determine the correct change from a transaction.

SPI 0406.3.2 Make generalizations about geometric and numeric patterns.

SPI 0406.4.3 Construct geometric figures with vertices at points on a coordinate grid.

SPI 0406.4.5 Identify attributes of simple and compound figures composed of 2- and 3-dimensional shapes.

SPI 0406.4.6 Determine situations in which a highly accurate measurement is important.

SPI 0406.4.10 Identify images resulting from reflections, translations, or rotations.

SPI 0406.5.3 Given a set of data or a graph describe the distribution of the data using median, range, or mode.

SPI 0406.5.4 List all possible outcomes of a given situation or event.

SPI 0406.2.9 Add and subtract decimals through hundredths.

SPI 0406.4.2 Graph and interpret points with whole number or letter coordinates on grids or in the first quadrant of the coordinate plane.

SPI 0406.5.1 Depict data using various representations (e.g., tables, pictographs, line graphs, bar graphs).

Common Core Standard Domains

NBT - Number & Operations in Base Ten

CC - Counting and Cardinality (K Only)

OA - Operations and Algebraic Thinking

MD - Measurement and Data

NF - Number & Operations - Fractions

G - Geometry

Appropriate Common Core State Standards and Clusters are followed by one of the following symbols.

■ Major Clusters/Standards

□ Supporting Clusters/Standards

○ Additional Clusters/Standards

FS Fluency Standard

The state has identified specific CCSS that must be taught. These 'mathematical focus standards' are in bold with cells that are highlighted in green. Additional time in pacing has been given in units where highlighted mathematical focus standards are listed.

Common Core Focus Standards

Tennessee's transition to the CCSS Math (CCSSM) will continue with grades 3-8 in the 2012-2013 school year. Teachers will still teach the current TDP standards (minus the SPIs to be dropped from the TCAP). In addition, teachers will also be teaching the TNCore Focus Standards. These Focus Standards will allow teachers to focus where the Common Core focuses: on the essential knowledge and skills students need at each grade level in order to advance to the next level of mathematical understanding. Some of the Focus Standards will overlap with the TDP standards; however, as the instructional shifts and the Constructed Response Assessment items will prove, they call for a fundamentally different level of rigor and intensive focus.

Taken from: <http://tncore.org/math.aspx>

For Math 4 the focus clusters include the following focus standards:

4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3 - Unit 1

4.OA.A.1, 4.OA.A.2, 4.OA.A.3 - Unit 2

4.NF.A.1, 4.NF.A.2, 4.NF.B.3(a, b, c, d), 4.NF.B.4(a,b,c) - Units 4 and 7

Common Core Mathematical Practice Standards

The CCSS for Mathematical Practices are expected to be integrated into every mathematics lesson for all students grades K-12.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Common Core State Standards, Fluency in Mathematics

Fluency is not meant to come at the expense of understanding but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend one or more grades earlier in the standards than the grade when fluency is finally expected. (PARCC MCF, v3.0, p. 4)

Wherever the word fluently appears in a content standard, the word means quickly and accurately. It means more or less the same as when someone is said to be fluent in a foreign language. To be fluent is to flow: Fluent isn't halting, stumbling, or reversing oneself. A key aspect of fluency in this sense is that it is not something that happens all at once in a single grade but requires attention to student understanding along the way. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the standards that call explicitly for fluency. (PARCC MCF, v3.0, p. 12)

The fluency expectation for Math 4 is:

4.NBT.B.4 - Add/Subtract within 1,000,000 - Unit 2

Bold print or Strikethroughs within the standards.

Bold print within any standard denotes that only that portion of the standard should be taught to mastery during that time period. Strikethroughs indicate portions of the standard that will be covered in another unit or concept.

Number of Teaching Days

The number of teaching days for each unit is provided. This serves as a guide to ensure that all standards are taught during the school year.

Resources

Current textbook adoption

Questions or comments should be directed to Karl Bittinger or Jamie James, Math Curriculum Consulting Teachers

Last updated on

5/30/2013

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Process Standards

These standards should be ongoing throughout the year. They should influence the methods and strategies selected for instruction. Although most of them would apply to each unit of the curriculum, only those with specific applications have been included within the units of the pacing guide. The expectation is that the others will be incorporated on a regular basis to promote best practices in mathematics instruction.

When working with Mathematical Process Standards the teacher should additionally consider the Common Core Mathematical Practice Standards.

GLE 0406.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.

GLE 0406.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.

SPI 0406.1.4 Compare objects with respect to a given geometric or physical attribute and select appropriate measurement instrument.

✓0406.1.1 Understand the relationship between use of answers and the accuracy of the number.

✓0406.1.2 Identify the range of appropriate estimates, including over-estimate and under-estimate.

✓0406.1.5 Measure using ruler, meter stick, clock, thermometer, or other scaled instruments.

✓0406.1.6 Identify geometric or physical attributes that are appropriate to measure in a given situation.

GLE 0406.1.3. Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.

SPI 0406.1.1 Verify a conclusion using the commutative, associative and distributive properties.

✓0406.1.4 Use commutative, associative, and distributive properties of numbers including oral descriptions of mathematical reasoning.

GLE 0406.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.

GLE 0406.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.

GLE 0406.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.

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Unit Schedule

| <u>1st Semester</u> | | | |
|----------------------------|-----------------------------|-------------------------|-------------|
| Unit | Title | Dates | Days |
| Unit 0 | Organizational Days | Aug. 7, 2013 | 1 |
| Unit 1 | Place Value | Aug. 9 - Aug. 30, 2013 | 16 |
| Unit 2 | Multiplication and Division | Sep. 3 - Nov. 26, 2013 | 54 |
| Unit 3 | Measurement and Data | Dec. 2 - Dec. 20, 2013 | 15 |
| | | | |
| <u>2nd Semester</u> | | | |
| Unit | Title | Dates | Days |
| Unit 4 | Fractions and Decimals | Jan. 7 - Mar. 21, 2014 | 52 |
| Unit 5 | Geometry | Mar. 31 - Apr. 17, 2014 | 14 |
| Unit 6 | TCAP Review and TCAP | Apr. 21 - May 2, 2014 | 10 |
| Unit 7 | Focus Cluster Reinforcement | May 5 - May 22, 2014 | 14 |

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Unit 0

Unit 0: Organizational Days: 1 Day: Aug. 7, 2013

This unit is for classroom introduction and beginning of the year activities.

Unit 1: Place Value: 16 Days: Aug. 9 to Aug. 30, 2013

Generalize place value understanding for multi-digit whole numbers. ■

4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. ■

4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. ■

4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place. ■

4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. ■

Use place value understanding and properties of operations to perform multi-digit arithmetic. ■

4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm. ■ **FS**

SPI 0406.1.1 Verify a conclusion using the **commutative**, **associative** and distributive properties.

GLE 0406.2.1 Understand place value of numbers from hundredths to the hundred-thousands place.

SPI 0406.2.1 Read and write numbers from hundredths to hundred-thousands in numerals and in words.

SPI 0406.2.3 Identify the place value of a specified digit in a number and the quantity it represents.

✓ 0406.2.1 Compose and decompose quantities according to place value.

✓ 0406.2.2 Understand decimal notation as an extension of the base-ten number system.

GLE 0406.2.6 Solve problems involving **whole numbers**, ~~fractions~~, and/or ~~decimals~~ using all four arithmetic operations.

SPI 0406.2.10 Solve contextual problems using **whole numbers**, ~~fractions~~, and ~~decimals~~.

✓ 0406.2.13 Solve multi-step problems of various types using **whole numbers**, ~~fractions~~, and ~~decimals~~.

GLE 0406.3.1 Extend understanding of a variable to equations involving **whole numbers**, ~~fractions~~, ~~decimals~~, and/or ~~mixed numbers~~.

SPI 0406.3.1 Use letters and symbols to represent an unknown quantity and write a simple mathematical expression.

✓0406.3.1 Find an unknown quantity in simple equations using **whole numbers**, ~~fractions, decimals, and mixed numbers.~~

✓0406.3.2 Translate between symbols and words to represent quantities in expressions or equations.

GLE 0406.3.3 Translate between different forms of representations of whole number relationships.

✓0406.3.4 Translate between symbolic, numerical, verbal, or pictorial representations of a whole number pattern or relationship.

Unit 2: Multiplication and Division: 54 Days: Aug. 26 to Nov. 26, 2013

Use the four operations with whole numbers to solve problems. ■

4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. ■

4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.¹ ■

4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. ■

SPI 0406.1.1 Verify a conclusion using the commutative, associative and distributive properties.

GLE 0406.2.3 Identify prime and composite numbers.

SPI 0406.2.4 Find factors, common factors, multiples, and common multiples of two numbers.

✓ 0406.2.7 Identify factors of whole numbers and model factors and products beyond basic multiplication facts using arrays and area models.

GLE 0406.2.2 Develop fluency with multiplication and single-digit division.

SPI 0406.2.11 Solve problems using whole number multi-digit multiplication.

SPI 0406.2.12 Solve problems using whole number division with one- or two-digit divisors.

✓ 0406.2.3 Multiply two- and three-digit whole numbers.

✓ 0406.2.4 Understand and use a reliable algorithm for multiplying multi-digit numbers and dividing numbers by a single-digit divisor accurately and efficiently.

✓ 0406.2.5 Understand that division by zero is undefined.

✓ 0406.2.6 Divide three-digit whole numbers by one-digit divisors fluently with pencil and paper.

✓ 0406.2.10 Use models to understand division as the inverse of multiplication, partitioning, and repeated subtraction.

✓ 0406.2.14 Understand the role of the remainder in division.

GLE 0406.2.6 Solve problems involving **whole numbers**, ~~fractions, and/or decimals~~ using all four arithmetic operations.

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Unit 2

SPI 0406.2.10 Solve contextual problems using **whole numbers**, ~~fractions, and decimals.~~

✓ 0406.2.13 Solve multi-step problems of various types using **whole numbers**, ~~fractions, and decimals.~~

GLE 0406.3.1 Extend understanding of a variable to equations involving **whole numbers**, ~~fractions, decimals, and/or mixed numbers.~~

SPI 0406.3.1 Use letters and symbols to represent an unknown quantity and write a simple mathematical expression.

✓0406.3.1 Find an unknown quantity in simple equations using **whole numbers**, ~~fractions, decimals, and mixed numbers.~~

✓0406.3.2 Translate between symbols and words to represent quantities in expressions or equations.

GLE 0406.3.3 Translate between different forms of representations of whole number relationships.

✓0406.3.4 Translate between symbolic, numerical, verbal, or pictorial representations of a whole number pattern or relationship.

The following are additional Common Core State Standards.

Gaps should be addressed when pacing permits.

These standards will be fully implemented beginning August 2014.

Gain familiarity with factors and multiples. □

4.OA.B.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. □

Use place value understanding and properties of operations to perform multi-digit arithmetic. ■

4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. ■

4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. ■

¹ See Table 2 in the CCSS for Mathematics found at corestandards.org.

For all 4.NBT standards within common core: Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

Unit 3: Measurement and Data: 15 days: Dec. 2 - Dec. 20, 2013

SPI 0406.1.4 Compare objects with respect to a given geometric or physical attribute and select appropriate measurement instrument.

✓0406.1.5 Measure using ruler, meter stick, clock, thermometer, or other scaled instruments.

✓0406.1.6 Identify geometric or physical attributes that are appropriate to measure in a given situation.

GLE 0406.4.2 Understand and use measures of length, area, capacity, and weight.

SPI 0406.4.7 Determine appropriate size of unit of measurement in problem situations involving length, capacity or weight.

✓0406.4.6 Recognize the use of decimals in metric measures.

✓0406.4.7 Measure liquids using both standard units and metric units.

✓0406.4.8 Recognize that a measure of area represents the total number of same-sized units /that cover the shape without gaps or overlaps.

✓0406.4.9 Recognize that area does not change when 2-dimensional figures are cut apart and rearranged.

✓0406.4.10 Connect area measure to multiplication using a rectangular area model.

✓0406.4.13 Compare objects with respect to a given attribute such as length, area, and capacity.

GLE 0406.4.3 Solve problems that involve estimating and measuring length, area, capacity and weight.

SPI 0406.4.8 Convert measurements within a single system that are common in daily life (e.g., hours and minutes, inches and feet, centimeters and meters, quarts and gallons, liters and milliliters).

SPI 0406.4.9 Solve problems involving area and/or perimeter of rectangular figures.

✓0406.4.11 Estimate areas of rectangles in square inches and square centimeters.

✓0406.4.12 Estimate the size of an object with respect to a given measurement attribute (length, perimeter, area, or capacity).

DATA

SPI 0406.3.3 Represent and analyze patterns using words, function tables and graphs.

SPI 0406.5.2 Solve problems using estimation and comparison within a single set of data.

LINE PLOTS: It is critical that a review of line plots is included in this unit while teaching various data representations in order to be prepared for 4.MD.B.4 in Unit 4/Fractions and Decimals. After Common Core is fully implemented, students will have had exposure to line plots beginning with the 2nd grade.

The following are additional Common Core State Standards.

Gaps should be addressed when pacing permits.

These standards will be fully implemented beginning August 2014.

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ... ■

4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. ■

4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. ■

Generate and analyze patterns.

4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. ○

Unit 4: Fractions and Decimals: 52 Days: Jan. 7 - Mar. 21, 2014

For all 4.NF standards in common core: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Extend understanding of fraction equivalence and ordering. ■

4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. ■

3.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. ■

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. ■

4.NF.B.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. ■

4.NF.B.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. ■

4.NF.B.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$. ■

4.NF.B.3c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. ■

4.NF.B.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. ■

4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. ■

4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$. ■

4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.) ■

4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? ■

GLE 0406.2.4 Understand and use the connections between fractions and decimals.

SPI 0406.2.2 Locate and place mixed numbers on the number line.

SPI 0406.2.5 Generate equivalent forms of **common fractions and decimals** and use them to compare size.

SPI 0406.2.6 Use the symbols $<$, $>$ and $=$ to compare **common fractions and decimals** in both increasing and decreasing order.

SPI 0406.2.7 Convert improper fractions into mixed numbers and/or decimals.

✓ 0406.2.2 Understand decimal notation as an extension of the base-ten number system.

✓ 0406.2.8 Generate equivalent forms of whole numbers, **decimals, and common fractions** (e.g., $1/10$, $1/4$, $1/2$, $3/4$).

✓ 0406.2.9 Compare equivalent forms whole numbers, **fractions, and decimals** to each other and to benchmark numbers

✓ 0406.2.11 Use models, benchmarks, and equivalent forms to compare fractions/decimals and locate them on the number line.

✓ 0406.2.12 Understand and use decimal numbers up to hundredths and write them as fractions.

GLE 0406.2.5 Add and subtract fractions with like and unlike denominators.

SPI 0406.2.8 Add and subtract proper fractions with like and unlike denominators and simplify the answer. (Note: Teachers will continue to teach adding unlike denominators this school year.)

GLE 0406.2.6 Solve problems involving whole numbers, **fractions, and/or decimals** using all four arithmetic operations.

SPI 0406.2.10 Solve contextual problems using whole numbers, **fractions, and decimals**.

✓ 0406.2.13 Solve multi-step problems of various types using whole numbers, **fractions, and decimals**.

GLE 0406.3.1 Extend understanding of a variable to equations involving whole numbers, **fractions, decimals, and/or mixed numbers**.

✓ 0406.3.1 Find an unknown quantity in simple equations using whole numbers, **fractions, decimals, and mixed numbers**.

✓ 0406.3.2 Translate between symbols and words to represent quantities in expressions or equations.

SPI 0406.3.1 Use letters and symbols to represent an unknown quantity and write a simple mathematical expression.

The following are additional Common Core State Standards.

Gaps should be addressed when pacing permits.

These standards will be fully implemented beginning August 2014.

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| Understand decimal notation for fractions, and compare decimal fractions. ■ |
| 4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. ² For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. ■ |
| 4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram. ■ |
| 4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. ■ |

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| Represent and interpret data. □ |
| 4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. □ |

For all 4.NF standards in common core: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Unit 5: Geometry: 14 Days: Mar. 31 - Apr.17, 2014

SPI 0406.4.1 Classify lines and line segments as parallel, perpendicular, or intersecting.

SPI 0406.4.4 Identify acute, obtuse, and right angles in 2-dimensional shapes.

✓0406.4.1 Identify the basic parts of circles.

✓0406.4.2 Understand the definition of degree as it relates to the circle.

✓0406.4.3 Classify angles and triangles as obtuse, acute, or right.

✓0406.4.4 Measure and draw angles.

The following are additional Common Core State Standards.

Gaps should be addressed when pacing permits.

These standards will be fully implemented beginning August 2014.

Draw and identify lines and angles, and classify shapes by properties of their lines and angles. o

4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. o

4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. o

4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. o

Geometric measurement: understand concepts of angle and measure angles. o

4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: o

4.MD.C.5a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles. o

4.MD.C.5b An angle that turns through n one-degree angles is said to have an angle measure of n degrees. o

4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. o

4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. o

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| Unit 6: TCAP Review and testing: 10 days: April 21 to May 2, 2014 |
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| This unit should be used to address the areas of concern for your class. Each teacher should use benchmark and class assessment data to determine content that needs additional practice or time. |
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Unit 7

Unit 7: Focus Cluster Reinforcement: 14 days: May 5 to May 22, 2014.

Note: This unit should be used to address the areas of concern for your class in preparation for May's constructed response assessment. This unit is meant to be a conceptual understanding of fractions, so calculators should not be used.

Extend understanding of fraction equivalence and ordering. ■

4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. ■

3.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. ■

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. ■

4.NF.B.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. ■

4.NF.B.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. ■

4.NF.B.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$. ■

4.NF.B.3c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. ■

4.NF.B.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. ■

4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$. ■

4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.) ■

4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? ■

For all 4.NF standards in common core: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.